EFFECT OF PLYOMETRIC TRAINING ON SELECTED MOTOR FITNESS AND SKILL PERFORMANCE VARIABLES OF SUB JUNIOR JUDOKAS

1. INTRODUCTION

Life is symbol of active movement which was considered synonymous by Plato who said "When and where movement finishes life finishes itself." Essence life is vigorous physical movement.

In modern scientific age in every field of human endeavor systematic objectives and scientific procedures are followed in accordance with the principles based on experiences understanding and application of knowledge of science and interrelated subjects. Advanced countries like USA, Germany, Russia, Great Britain, France and others have made rapid progress in game and sports like athletics, swimming, hockey, gymnastics, basketball etc. This progress and international achievements have been possible only due to the research experimentation and application of scientific knowledge through specific training programme for the development of the athlete in particular sports.

Sports scientist and researchers have made the field of sports highly competitive and specialized in nature. Today specialized training programs are developed taking into the consideration the physical and psychological ability of a player therefore every sport is played in a highly competitive and organized manner.

Since the revival of the Olympic Games by Baron Pierre de Coubertin in 1896 increasing international interest and participation in games and sports have been observed. Judo is invented

from old martial Art ‘Ji-Jit-Su’. In olden days Ji-Jit-Su was very dangerous art of chocking & locking the body parts for the self- defense, so the founder of Judo Dr. JigaroKano has taken good-techniques from Ji-Jit-Su & form a new martial art ‘Ju-do’. Judo means ‘The Gentle Way’.

Ju means gentle & do means the ways. Judo is divided into two parts sport Judo & self-Judo. The fundamental principal of Judo is the most effective use of one’s spiritual & physical strength. In other word use of strength of opponent to beat him. Judo invented in 1882 in Japan since many countries playing Judo as sports all over the world. It is close contact martial art and Olympic sports since Tokyo Olympic, 1964. People practice Judo to excel in the Competition to stay in shape & to develop self-confidence. Judo develops self-discipline & respect for one self & others.

Judo provides the means for learning concentration, power, flexibility and physical-co-ordination as well as leadership skill. Judo training gives a person an effective self-defense system if the need arise.The movement speed is the ability to execute movement with high speed and can be measured by the time taken to complete the movement. The movement speed depends upon technique, explosive strength, flexibility and other Motor fitness components. An attempt has been made to explore the potentiality of the athletes already they have and identify those qualities actually required for a standard performer in Judo. Modern day Judo is very fast, aggressive and skillful Martial Art which requires a high degree of motor fitness and skills. The need was felt to develop a training program which would help to improve the Motor fitness and in turn the Skill performance of Judo players, considering the interrelationship of Motor fitness and Skill performance in Judo.

1.1 STATEMENT OF THE PROBLEM

Although different investigation and research are conducted so far to record efficacy of Judoka in different categories, however the experimental study of sub junior judoka is absent so far in the literature.Hence there is an imminent need to conduct research in the area of physical education and sport-Judo.Therefore, the present study entitledEFFECT OF PLYOMETRIC TRAINING ON SELECTED MOTOR FITNESS AND SKILL PERFORMANCE VARIABLES OF SUB JUNIOR JUDOKAS

1.2 SIGNIFICANCES OF THE STUDY

- The result of the studywill be helpful to improve the selected motor fitness variables as well as skill performance variables related to it.
- The study will help the Coaches, Physical Education teachers with respect to plyometric training.
- This study may be helpful for the Judokas who participate invarious competitions for bettersuccess.
- Create interest and liking towards new method of training to improve the performance of the Judokas

1.3 OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

- To study the effect of plyometric training on Power of Sub Junior Judokas.
- To study the effect of plyometric training on Speed of Sub Junior Judokas.
- To study the effect of plyometric training on Cardiovascular Endurance of Sub Junior Judokas.
- To study the effect of plyometric training on Agility of Sub Junior Judokas.
- To study the effect of plyometric training on Arm Strength of Sub Junior Judokas.
- To study the effect of plyometric training on Abdomen Strength of Sub Junior Judokas.
- To study the effect of plyometric training on Leg Strength of Sub Junior Judokas.
- To study the effect of plyometric training on throwing performance of the technique. Ippon –seoi-nage of Sub Junior Judokas.
- To study the effect of plyometric training on throwing performance of the technique Tomoe nage of Sub Junior Judokas.
- To study the effect of plyometric training on throwing performance of the technique O-soto-gari of Sub Junior Judokas.
- To help Judokas to enhance their overall performance.

1.4HYPOTHESES OF THE STUDY

The hypothesis to be tested aresought below

H_1 Plyometric training will give a significant improvement in Power of Sub Junior Judokas.

H_2 Plyometric training will give a significant improvement in Speed of Sub Junior Judokas.

H_3Plyometric training will give a significant improvement in Agility of Sub Junior Judokas.

H_4Plyometric training will give a significant improvement in Cardiovascular Endurance ofSub JuniorJudokas.

H_5Plyometric training will give a significant improvement in Arm strength of Sub Junior Judokas.

H_6Plyometric training will give a significant improvement in Abdominal Strength of Sub Junior Judokas.

H_7Plyometric training will give a significant improvement in Leg Strength of Sub Junior Judokas.

H_8Plyometric training will give a significant improvement on throwing performance of the technique of Ippon –seoi-nage of Sub Junior Judokas.

H_9 Plyometric training will give a significant improvement on throwing performance of the technique of Tomoe-nage of Sub Junior Judokas.

H_{10}Plyometric training will give a significant improvement on throwing performance of the technique of O- soto-gari of Sub Junior Judokas.

1.5 LIMITATIONS:-

- It will not be possible to control the day-to-day activities of the subjects selected forthe experimental group which included diet, food habits andrest.
- Besides their regular Judo practice, no special training willbe imparted to the control group.
- Training for the experimental group will be limited to only an hour, three days a week for 4 months.

1.6 DELIMITATIONS:-

- The study will be delimited to Sub Junior Judokas.
- The study will be delimited to subject's age range from 11yrsto14yrs.
- The study will be delimited to selected plyometricexercises for 4 Month three days in a week for one hour duration.
- The study will be delimited to selected motor fitnessvariables and skill related performance.

METHODOLOGY

The methodology of this study consist of Plyometric Training Group (Experimental Group) and Non Plyometric Training Group (Control Group) for testing the of Plyometric Training programme on motor fitness and skill performance Variables ofSub Junior Judokasaged 11 to 14 years of Mumbai City.

2. DESIGN OF THE STUDY

The present study is conducted by adopting the experiment method of research. The experiment design of the study will be the Non Equivalent control group design.

Experimental Method

(Pre Test – Post Test Control Group Design)

		Experimental Group (n= 40) Control Group (n= 40)		
Pretest	-	Phase I	-	Pre test
Treatment	-	Phase II	-	No Treatment
Post test-		Phase III	-	Post test

3. SELECTION OF THE SUBJECTS AND SAMPLE

A sample of forty (n=40) Sub Junior Judokawill be randomly selected for the study of age ranging between 11-14 years as subjects from Chatrabhuj Narsee School, Thakur Village, Kandivali East Mumbai-400101, Maharashtra. Training will be restricted to only experimental group 1 hour per day for 3days per week for a total period of 16 weeks.

GROUP	NO OF SUBJECTS
Experimental group (Plyometric Training Group)	40
Control group (Non- Plyometric Training Group)	40
Total	**80**

4. SELECTION OF THE VARIABLES AND TEST

4.1 DEPENDENT VARIABLES

1. Explosive Power	❖Standing Broad Jump ❖Medicine Ball Throw
2. Speed	❖50 Mtr Dash
3. Agility	❖SEMO Agility Test

4. Cardiovascular Endurance	❖Harvard Step Test
5. Shoulder Strength	❖Pull ups
6. Abdominal Strength	❖Sit ups
7. Leg Strength	❖Leg Lift Dynamometers
8. Ippon-seoi-nage	❖Judo Fitness Test
9. Tomoe-nage	❖Judo Fitness Test
10. O-soto-gari	❖Judo Fitness Test

4.2 INDEPENDENT VARIABLES – PLYOMETRIC TRAINING PROGRAM

1. Jump in place	❖Tuck jump with heel kick ❖Split pike jump ❖Standing long jump
2. Box drills	❖Pyramiding box hops ❖Jump from box
3. Depth Jumps	❖Depth jump ❖Incline push up depth jump ❖Single leg depth jump
4. Medicine ball exercises	❖Over-under ❖Underhand throw

4.3 JUSTIFICATION OF SELECTION OF TEST

JUSTIFICATION OF TEST

The test which will be used for conducting pre and posttest are specifically developed for the purpose of testing the selected dependent variables. The exercises included in the training programme are justifiable because they will be selected by refereeing the standardized literature available in the Physical Education Library.

5.DESCRIPTION OF TESTS AND TOOLS (DEPENDENT VARIABLES)

1. **EXPLOSIVE POWER**
   - Standing Broad Jump
   - Medicine Ball Throw Test
2. **SPEED**
   - 50 Mtrs Dash
3. **AGILITY**
   - SEMO Agility Test
4. **CARDIOVASCULAR ENDURANCE**
   - Harvard Step Test forCardiovascular Endurance
5. **SHOULDER STRENGTH**
   - Pull ups
6. **ABDOMINAL STRENGTH**
   - Sit ups
7. **LEG STRENGTH**
   - Leg lift Dynamometre

8. **IPPON-SEOI-NAGE**
    - Judo Fitness Test
9. **TOMOI-NAGE**
    - Judo Fitness Test
10. **O-SOTO-GARI**
    - Judo Fitness Test

6. DESCRIPTION OF TESTS AND TOOLS (INDEPENDENT VARIABLE)

1. Tuck jump with heel kick

2. Split pike jump

3. Pyramiding box hops

4. Jump from box

5. Depth jump

6. Incline pushup depth jump

7. Single leg depth jump

.

8. Over Under Medicine Ball Exercise

9. Under hand Throw

10. Standing long jump

7. CRITERIONMEASURES

VARIABLES	TEST	UNITS
Explosive Power	➢ Standing Broad Jump ➢ Medicine Ball Throw	Meters/Centimeters
Speed	➢ 50 Mtr Dash	Seconds
Agility	➢ SEMO Agility Test	Seconds
Cardiovascular Endurance	➢ Harverd Step Test	Seconds
Shoulder Strength	➢ Pull ups	Points
Abdominal Strength	➢ Sit ups	Points
Leg Strength	➢ Leg Lift Dynamometre	Kg
Ippon-seoi-nage	➢ Judo Fitness Test	Points
Tomoe-nage	➢ Judo Fitness Test	Points
O-soto-gari	➢ Judo Fitness Test	Points

8. RELIABILITY OF DATA

The reliability of data will be taken into consideration with the factors such as reliability of test, tools as well as tester's competency.

8.1 RELIABILTY OF TESTS

The entire test for data collection will be standardized and referred from the book entitled Test and Measurement.

8.2 RELIABILITY OF TOOLS

The tools will be used for the collection of data Instrument will be taken from thelaboratory of Physical Education. The instruments will be standardized and reliable.

8.3 TESTER'S COMPETENCY

The research scholar is knowledgeable and capable of using the tools and applying them for the test. The other testing personnel assisting the study are equally capable.

The tester has clearly understood the purpose of the study and has carefully read the available literature on the topic which had enabled the tester to understand the various difficulties which would have cropped as an obstacle during course of the study.

9. PROCEDURE OF THE STUDY

The data was collected in the following phases:

PHASE-I	Pre Test
PHASE- II	Training Phase
PHASE- III	Post Test

9.1 PHASE-I

PRE-TEST

Before the actual administration of the pre-test the subject will be oriented about the testing by giving the detailed explanation about the testing procedures as well as by explaining do's & don'ts of the tests. Further, they will be acquainted with the procedure by giving them opportunity of practice if needed. The subject will also be encouraged for the participation as well as execute their full potential. The researchers will carefully insure that all the subjects are medically normal.

9.2 PHASE-II

TRAINING SCHEDULE

The total training programme of the experimental group in the period will be for imparted 16 weeks and 3 days in a week i.e.Monday, Wednesday and Friday for one hour. The tentative training scheduled is as follows:

PARTICULARS	**DURATION**
Warming Up	10 minutes
Plyometric Training	40 minutes
Cooling down	10 minutes
Total	**60 minutes**

9.3 PHASE- III

POST TEST

After completion of 16 weeks Plyometric Training Program for Sub Junior Judokas of the both control & experimental group will undergo post-test.

10. STATISTICAL PROCEDURE USED

The data will be analyzed by using One Way ANCOVA.

Signature of StudentSignature of Guide

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